

What is claimed is:

1. An objective lens driving device for an optical head, comprising:

a lens holder that holds an objective lens, the lens holder
5 having a front face, a back face, side faces and a lower face;
and

a base part on which the lens holder is provided;

wherein the lens holder comprises:

tracking coils formed of square type flat coils of the
10 same size, one pair of the tracking coils arranged on a front
face side of the lens holder and another pair of the tracking
coils arranged on a back face side of the lens holder respectively
in a direction perpendicular to a focus direction with an interval
therebetween and connected in series;

15 a focusing coil that is wound around the front face, the
back face and the side faces of the lens holder in a direction
perpendicular to the focus direction;

first and a second wires arranged on one side face of the
lens holder to support the lens holder, and adapted to supply
20 control currents to the tracking coils;

third and a fourth wires arranged on another side face
of the lens holder to support the lens holder, and adapted to
supply control current to the focusing coil; and

a pair of movable magnets for correcting a tilt angle,
25 the pair of movable magnets disposed on the lower face of the

lens holder at positions adjacent to both right and left ends thereof;

wherein the base part comprises:

5 a pair of fixed magnets arranged so as to be opposed to the tracking coils and the focusing coil of the lens holder to thereby act thereon;

a pair of right and left tilt angle correcting coils for correcting the tilt angle which are connected in series and arranged so as to be respectively opposed to the movable magnets
10 to thereby act thereon; and

power supply lines for supplying control currents to the tilt angle correcting coils; and

wherein a driving amount in a track direction is controlled by the control currents supplied by way of the first wire and
15 the second wire, a driving amount in the focus direction is controlled by the control currents supplied by way of the third wire and the fourth wire, and a driving amount in the tilt angle direction is controlled by the control currents supplied by way of the power supply lines.

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2. An objective lens driving device for an optical head, comprising:

a lens holder that holds an objective lens, the lens holder having a lower face; and

25 a base part on which the lens holder is provided;

wherein the lens holder comprises:

one or more tracking coils;

one or more focusing coils;

5 a plurality of wires that supply electric currents to the tracking coils and the focusing coils and support the lens holder in a cantilever manner; and

a pair of movable magnets disposed on the lower face of the lens holder in a track direction with an interval therebetween;

wherein the base part comprises:

10 a pair of fixed magnets arranged so as to be opposed to the tracking coils and the focusing coils of the lens holder thereby to act thereon;

15 a pair of right and left tilt angle correcting coils arranged so as to be respectively opposed to the movable magnets thereby to act thereon; and

power supply lines for supplying control currents to the tilt angle correcting coils; and

20 wherein driving amounts in the track direction and in a focus direction are controlled by control currents supplied to the tracking coils and the focusing coils by way of the wires, and a driving amount in a tilt angle direction is controlled by the control currents supplied to the tilt angle correcting coils by way of the power supply lines.

25 3. The objective lens driving device for an optical head as

claimed in claim 2, wherein the movable magnets are fixed to the lower face of the lens holder at positions adjacent to both right and left ends thereof.

5 4. The objective lens driving device for an optical head as claimed in claim 2, wherein a plurality of the tracking coils are provided on a front face side and a back face side of the lens holder respectively; and

wherein the focusing coil is wound around an outer peripheral
10 face of the lens holder in a direction perpendicular to the focus direction.

5. The objective lens driving device for an optical head as claimed in claim 2, wherein one tracking coil and one focusing
15 coil are adjacently disposed on a front face side of the lens holder and another tracking coil and another focusing coil are adjacently disposed on a back face side of the lens holder, and the tracking coil on one face of the lens holder is provided so as to be opposed to the focusing coil on another face; and

20 wherein each of the fixed magnets has on one face thereof a first portion in which the S pole and the N pole or the N pole and the S pole are arranged at both sides of a first boundary line extending in a direction perpendicular of the focus direction at a position opposed to the tracking coil, and a second portion
25 in which the S pole and the N pole or the N pole and the S pole

are arranged at both sides of a second boundary line extending in the focus direction at a position opposed to the focusing coil, and the adjacent same poles in the first portion and the second portion are formed of integral ferromagnetic material
5 which has been magnetized so as to form a single magnetic area.

6. The objective lens driving device for an optical head as claimed in claim 5, wherein in the fixed magnet, the first boundary line is formed so as to be opposed to a straight line passing
10 through a center of the tracking coil, and the second boundary line is formed so as to be opposed to a straight line passing through a center of the focusing coil.